# 2.105 Probability Scale and Simple Outcomes: 2-hour Pack

Total Marks

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 120 minutes

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** A bag contains 9 purple, 1 green, 7 yellow counters. One is picked at random. What is the probability that it is not yellow?

- ☐ A) 5/9
- ☐ B) 10/17
- ☐ C) 10/7
- ☐ D) 7/10
- ☐ E) 7/17

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**2** The probability of a player scoring a penalty is 1/8. A player takes 128 penalties. How many penalties would you expect to be scored?

- ☐ A) 128
- ☐ B) 1,024
- ☐ C) 17
- ☐ D) 112
- ☐ E) 16

---

**3** A box contains 3 green, 2 purple, 2 white cubes. One is picked at random. What is the probability that it is green?

- ☐ A) 3/7
- ☐ B) 3/4
- ☐ C) 3/8
- ☐ D) 4/7
- ☐ E) 1/3


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**4** The probabilities of red, blue and green are 0.3, 0.1 and 0.4. Only one other outcome (yellow) is possible. What is its probability?

- [ ] A) 0.1
- [ ] B) 0.2
- [ ] C) 0.7
- [ ] D) 0.8
- [ ] E) 0.3

---

**5** A box contains 7 green, 7 purple, 1 black cubes. One is picked at random. What is the probability that it is black?

- [ ] A) 14/15
- [ ] B) 1/3
- [ ] C) 1/15
- [ ] D) 1/16
- [ ] E) 1/14

---

**6** The probability of a spinner landing on red is 2/3. The spinner is spun 18 times. How many times would you expect it to land on red?

- [ ] A) 27
- [ ] B) 11
- [ ] C) 6
- [ ] D) 12
- [ ] E) 13

---

**7** The probability of a player scoring a penalty is 3/8. A player takes 96 penalties. How many penalties would you expect to be scored?

- [ ] A) 36
- [ ] B) 60
- [ ] C) 288
- [ ] D) 35
- [ ] E) 12


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**8** A jar contains 2 purple, 10 yellow marbles. One is picked at random. What is the probability that it is yellow?

- [ ] A) 10/13
- [ ] B) 1/12
- [ ] C) 5
- [ ] D) 1/6
- [ ] E) 5/6

---

**9** The probability of a spinner landing on red is 1/4. The spinner is spun 80 times. How many times would you expect it to land on red?

- [ ] A) 60
- [ ] B) 320
- [ ] C) 20
- [ ] D) 19
- [ ] E) 21

---

**10** The probabilities of rain, snow and sunshine are 0.1, 0.4 and 0.1. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.3
- [ ] B) 0.9
- [ ] C) 0.5
- [ ] D) 0.4
- [ ] E) 0.6

---

**11** A bag contains 14 orange, 12 yellow, 6 green counters. One is picked at random. What is the probability that it is not green?

- [ ] A) 3/13
- [ ] B) 13/3
- [ ] C) 13/16
- [ ] D) 26/33
- [ ] E) 3/16


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**12** A bag contains 5 black, 4 blue sweets. One is picked at random. What is the probability that it is not blue?

- [ ] A) 5/9
- [ ] B) 1/9
- [ ] C) 4/9
- [ ] D) 4/5
- [ ] E) 5/4

---

**13** The probability of a player scoring a penalty is 1/4. A player takes 72 penalties. How many penalties would you expect to be scored?

- [ ] A) 18
- [ ] B) 54
- [ ] C) 72
- [ ] D) 288
- [ ] E) 17

---

**14** A bag contains 5 white, 3 green, 3 black sweets. One is picked at random. What is the probability that it is not white?

- [ ] A) 5/11
- [ ] B) 6/11
- [ ] C) 1/2
- [ ] D) 5/6
- [ ] E) 6/5

---

**15** The probabilities of rain and snow are 0.4 and 0.2. Only one other outcome (sunshine) is possible. What is its probability?

- [ ] A) 0.8
- [ ] B) 0.3
- [ ] C) 0.5
- [ ] D) 0.6
- [ ] E) 0.4


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**16** A jar contains 5 blue, 8 white, 2 purple marbles. One is picked at random. What is the probability that it is not blue?

- [ ] A) 2/3
- [ ] B) 2
- [ ] C) 1/3
- [ ] D) 1/15
- [ ] E) 1/2

---

**17** A bag contains 1 black, 9 yellow, 8 purple sweets. One is picked at random. What is the probability that it is purple?

- [ ] A) 8/19
- [ ] B) 1/18
- [ ] C) 4/5
- [ ] D) 5/9
- [ ] E) 4/9

---

**18** The probability of a player scoring a penalty is 2/3. A player takes 21 penalties. How many penalties would you expect to be scored?

- [ ] A) 15
- [ ] B) 42
- [ ] C) 13
- [ ] D) 14
- [ ] E) 7

---

**19** A bag contains 6 yellow, 1 orange counters. One is picked at random. What is the probability that it is orange?

- [ ] A) 1/6
- [ ] B) 1/7
- [ ] C) 1/8
- [ ] D) 1/2
- [ ] E) 6/7


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**20** A box contains 8 orange, 2 green cubes. One is picked at random. What is the probability that it is not orange?

- [ ] A) 1/4
- [ ] B) 2/11
- [ ] C) 4/5
- [ ] D) 1/5
- [ ] E) 1/10

---

**21** The probability of a spinner landing on red is 5/8. The spinner is spun 80 times. How many times would you expect it to land on red?

- [ ] A) 128
- [ ] B) 30
- [ ] C) 51
- [ ] D) 50
- [ ] E) 10

---

**22** The probability of a spinner landing on red is 2/3. The spinner is spun 48 times. How many times would you expect it to land on red?

- [ ] A) 33
- [ ] B) 32
- [ ] C) 72
- [ ] D) 96
- [ ] E) 16

---

**23** The probability of a seed growing is 1/3. 24 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 72
- [ ] B) 24
- [ ] C) 16
- [ ] D) 9
- [ ] E) 8


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**24** A bag contains 9 yellow, 10 purple, 5 green sweets. One is picked at random. What is the probability that it is green?

- [ ] A) 5/24
- [ ] B) 19/24
- [ ] C) 1/24
- [ ] D) 1/5
- [ ] E) 5/19

---

**25** The probability of a seed growing is 1/3. 45 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 14
- [ ] B) 15
- [ ] C) 135
- [ ] D) 45
- [ ] E) 30

---

**26** A bag contains 3 red, 8 black, 8 green sweets. One is picked at random. What is the probability that it is not green?

- [ ] A) 11/8
- [ ] B) 8/19
- [ ] C) 1/19
- [ ] D) 11/19
- [ ] E) 8/11

---

**27** The probabilities of rain and snow are 0.3 and 0.1. Only one other outcome (sunshine) is possible. What is its probability?

- [ ] A) 0.4
- [ ] B) 0.7
- [ ] C) 0.6
- [ ] D) 0.9
- [ ] E) 0.5


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**28** A box contains 8 white, 1 yellow, 5 orange cubes. One is picked at random. What is the probability that it is white?

- [ ] A) 4/3
- [ ] B) 8/15
- [ ] C) 3/7
- [ ] D) 1/3
- [ ] E) 4/7

---

**29** The probabilities of rain, snow and sunshine are 0.4, 0.1 and 0.2. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.8
- [ ] B) 0.7
- [ ] C) 0.4
- [ ] D) 0.6
- [ ] E) 0.3

---

**30** A bag contains 5 black, 2 yellow counters. One is picked at random. What is the probability that it is yellow?

- [ ] A) 2/5
- [ ] B) 2/7
- [ ] C) 5/7
- [ ] D) 1/4
- [ ] E) 1/7

---

**31** The probabilities of win, draw and lose are 0.3, 0.3 and 0.2. Only one other outcome (abandoned) is possible. What is its probability?

- [ ] A) 0.3
- [ ] B) 0.8
- [ ] C) 0.2
- [ ] D) 0.7
- [ ] E) 0.1


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**32** A box contains 9 orange, 7 black, 7 green cubes. One is picked at random. What is the probability that it is not black?

- [ ] A) 7/16
- [ ] B) 16/7
- [ ] C) 7/23
- [ ] D) 16/23
- [ ] E) 1/23

---

**33** A bag contains 7 red, 8 orange, 3 green counters. One is picked at random. What is the probability that it is not orange?

- [ ] A) 4/5
- [ ] B) 4/9
- [ ] C) 1/18
- [ ] D) 5/4
- [ ] E) 5/9

---

**34** The probability of a spinner landing on red is 2/5. The spinner is spun 75 times. How many times would you expect it to land on red?

- [ ] A) 30
- [ ] B) 150
- [ ] C) 45
- [ ] D) 15
- [ ] E) 31

---

**35** A bag contains 1 green, 1 blue, 5 white counters. One is picked at random. What is the probability that it is not blue?

- [ ] A) 6
- [ ] B) 6/7
- [ ] C) 1/7
- [ ] D) 1/6
- [ ] E) 3/4


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**36** A box contains 2 black, 8 purple, 9 blue cubes. One is picked at random. What is the probability that it is black?

- [ ] A) 1/19
- [ ] B) 2/17
- [ ] C) 1/3
- [ ] D) 2/19
- [ ] E) 17/19

---

**37** The probability of a seed growing is 1/3. 48 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 32
- [ ] B) 16
- [ ] C) 144
- [ ] D) 48
- [ ] E) 15

---

**38** A jar contains 8 white, 2 red, 7 blue marbles. One is picked at random. What is the probability that it is not white?

- [ ] A) 8/9
- [ ] B) 9/8
- [ ] C) 1/17
- [ ] D) 9/17
- [ ] E) 8/17

---

**39** The probability of a spinner landing on red is 2/5. The spinner is spun 15 times. How many times would you expect it to land on red?

- [ ] A) 6
- [ ] B) 30
- [ ] C) 3
- [ ] D) 7
- [ ] E) 9


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**40** The probability of a spinner landing on red is 1/3. The spinner is spun 12 times. How many times would you expect it to land on red?

- [ ] A) 4
- [ ] B) 8
- [ ] C) 3
- [ ] D) 12
- [ ] E) 36

---

**41** A jar contains 4 red, 1 orange marbles. One is picked at random. What is the probability that it is orange?

- [ ] A) 1/6
- [ ] B) 1/2
- [ ] C) 1/4
- [ ] D) 4/5
- [ ] E) 1/5

---

**42** The probabilities of rain, snow and sunshine are 0.2, 0.3 and 0.4. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.2
- [ ] B) 0.6
- [ ] C) 0.1
- [ ] D) 0.8
- [ ] E) 0.9

---

**43** The probability of a player scoring a penalty is 1/6. A player takes 108 penalties. How many penalties would you expect to be scored?

- [ ] A) 18
- [ ] B) 17
- [ ] C) 19
- [ ] D) 90
- [ ] E) 648


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**44** A box contains 5 purple, 7 green cubes. One is picked at random. What is the probability that it is not purple?

- [ ] A) 7/5
- [ ] B) 7/13
- [ ] C) 5/12
- [ ] D) 1/12
- [ ] E) 7/12

---

**45** The probability of a player scoring a penalty is 3/5. A player takes 60 penalties. How many penalties would you expect to be scored?

- [ ] A) 12
- [ ] B) 36
- [ ] C) 180
- [ ] D) 24
- [ ] E) 37

---

**46** The probabilities of red, blue and green are 0.2, 0.2 and 0.4. Only one other outcome (yellow) is possible. What is its probability?

- [ ] A) 0.3
- [ ] B) 0.8
- [ ] C) 0.1
- [ ] D) 0.6
- [ ] E) 0.2

---

**47** A jar contains 7 white, 5 red marbles. One is picked at random. What is the probability that it is white?

- [ ] A) 7/5
- [ ] B) 7/12
- [ ] C) 1/2
- [ ] D) 1/12
- [ ] E) 5/12


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**48** A bag contains 8 black, 3 orange sweets. One is picked at random. What is the probability that it is black?

- [ ] A) 1/2
- [ ] B) 3/11
- [ ] C) 8/3
- [ ] D) 8/11
- [ ] E) 2/3

---

**49** A box contains 1 green, 7 yellow cubes. One is picked at random. What is the probability that it is not green?

- [ ] A) 7/8
- [ ] B) 1/8
- [ ] C) 7/9
- [ ] D) 7
- [ ] E) 1/7

---

**50** The probabilities of rain, snow and sunshine are 0.3, 0.4 and 0.2. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.2
- [ ] B) 0.8
- [ ] C) 0.7
- [ ] D) 0.1
- [ ] E) 0.9

---

**51** A bag contains 3 white, 11 black sweets. One is picked at random. What is the probability that it is not white?

- [ ] A) 1/14
- [ ] B) 3/14
- [ ] C) 3/11
- [ ] D) 11/14
- [ ] E) 11/3


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**52** The probability of a player scoring a penalty is 1/2. A player takes 16 penalties. How many penalties would you expect to be scored?

- [ ] A) 32
- [ ] B) 7
- [ ] C) 9
- [ ] D) 16
- [ ] E) 8

---

**53** A box contains 9 red, 7 blue, 7 green cubes. One is picked at random. What is the probability that it is red?

- [ ] A) 14/23
- [ ] B) 9/14
- [ ] C) 9/23
- [ ] D) 1/3
- [ ] E) 1/23

---

**54** The probability of a spinner landing on red is 1/6. The spinner is spun 84 times. How many times would you expect it to land on red?

- [ ] A) 14
- [ ] B) 84
- [ ] C) 70
- [ ] D) 13
- [ ] E) 504

---

**55** A box contains 4 green, 7 blue cubes. One is picked at random. What is the probability that it is blue?

- [ ] A) 4/11
- [ ] B) 7/11
- [ ] C) 7/4
- [ ] D) 7/12
- [ ] E) 1/2


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**56** A bag contains 9 black, 9 orange, 4 blue sweets. One is picked at random. What is the probability that it is not blue?

- [ ] A) 9/2
- [ ] B) 9/11
- [ ] C) 2/11
- [ ] D) 1/22
- [ ] E) 18/23

---

**57** The probability of a spinner landing on red is 1/2. The spinner is spun 34 times. How many times would you expect it to land on red?

- [ ] A) 34
- [ ] B) 18
- [ ] C) 68
- [ ] D) 16
- [ ] E) 17

---

**58** The probability of a seed growing is 2/3. 54 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 81
- [ ] B) 18
- [ ] C) 37
- [ ] D) 36
- [ ] E) 35

---

**59** The probabilities of red, blue and green are 0.1, 0.2 and 0.3. Only one other outcome (yellow) is possible. What is its probability?

- [ ] A) 0.4
- [ ] B) 0.6
- [ ] C) 0.7
- [ ] D) 0.3
- [ ] E) 0.5


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**60** A bag contains 11 blue, 12 yellow, 7 green counters. One is picked at random. What is the probability that it is yellow?

- [ ] A) 1/3
- [ ] B) 2/3
- [ ] C) 12/31
- [ ] D) 3/5
- [ ] E) 2/5

---

**61** The probabilities of rain, snow and sunshine are 0.3, 0.3 and 0.1. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.4
- [ ] B) 0.2
- [ ] C) 0.3
- [ ] D) 0.9
- [ ] E) 0.7

---

**62** The probability of a spinner landing on red is 3/10. The spinner is spun 30 times. How many times would you expect it to land on red?

- [ ] A) 9
- [ ] B) 100
- [ ] C) 90
- [ ] D) 21
- [ ] E) 3

---

**63** A box contains 8 white, 13 purple cubes. One is picked at random. What is the probability that it is not purple?

- [ ] A) 8/13
- [ ] B) 13/21
- [ ] C) 4/11
- [ ] D) 8/21
- [ ] E) 1/21


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**64** The probabilities of win and draw are 0.1 and 0.2. Only one other outcome (lose) is possible. What is its probability?

- [ ] A) 0.6
- [ ] B) 0.3
- [ ] C) 0.7
- [ ] D) 0.8
- [ ] E) 0.9

---

**65** A bag contains 2 green, 9 purple counters. One is picked at random. What is the probability that it is green?

- [ ] A) 1/11
- [ ] B) 2/11
- [ ] C) 9/11
- [ ] D) 1/6
- [ ] E) 2/9

---

**66** Which of the following numbers could not be a probability for a single event?

- [ ] A) 0.1
- [ ] B) -0.2
- [ ] C) 0.5
- [ ] D) 0.9
- [ ] E) 0.0

---

**67** The probabilities of red and blue are 0.4 and 0.4. Only one other outcome (green) is possible. What is its probability?

- [ ] A) 0.2
- [ ] B) 0.6
- [ ] C) 0.3
- [ ] D) 0.8
- [ ] E) 0.1


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**68** A bag contains 4 black, 8 orange, 7 purple counters. One is picked at random. What is the probability that it is black?

- [ ] A) 4/15
- [ ] B) 4/19
- [ ] C) 15/19
- [ ] D) 1/19
- [ ] E) 1/3

---

**69** A bag contains 5 white, 3 blue, 3 purple sweets. One is picked at random. What is the probability that it is white?

- [ ] A) 6/11
- [ ] B) 5/6
- [ ] C) 1/3
- [ ] D) 1/11
- [ ] E) 5/11

---

**70** The probabilities of rain and snow are 0.4 and 0.3. Only one other outcome (sunshine) is possible. What is its probability?

- [ ] A) 0.7
- [ ] B) 0.3
- [ ] C) 0.2
- [ ] D) 0.4
- [ ] E) 0.6

---

**71** A bag contains 8 blue, 8 orange, 9 red counters. One is picked at random. What is the probability that it is not red?

- [ ] A) 9/25
- [ ] B) 9/16
- [ ] C) 16/9
- [ ] D) 16/25
- [ ] E) 8/13


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**72** A bag contains 9 black, 6 blue sweets. One is picked at random. What is the probability that it is black?

- [ ] A) 2/5
- [ ] B) 3/2
- [ ] C) 3/5
- [ ] D) 1/15
- [ ] E) 9/16

---

**73** The probability of a player scoring a penalty is 9/10. A player takes 90 penalties. How many penalties would you expect to be scored?

- [ ] A) 81
- [ ] B) 810
- [ ] C) 100
- [ ] D) 9
- [ ] E) 82

---

**74** A box contains 7 yellow, 6 purple cubes. One is picked at random. What is the probability that it is yellow?

- [ ] A) 6/13
- [ ] B) 7/13
- [ ] C) 7/6
- [ ] D) 1/13
- [ ] E) 1/2

---

**75** The probability of a player scoring a penalty is 1/4. A player takes 20 penalties. How many penalties would you expect to be scored?

- [ ] A) 80
- [ ] B) 20
- [ ] C) 15
- [ ] D) 5
- [ ] E) 4


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**76** A bag contains 8 white, 7 yellow sweets. One is picked at random. What is the probability that it is white?

- [ ] A) 1/15
- [ ] B) 7/15
- [ ] C) 1/2
- [ ] D) 8/15
- [ ] E) 8/7

---

**77** The probability of a seed growing is 1/6. 102 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 612
- [ ] B) 18
- [ ] C) 17
- [ ] D) 102
- [ ] E) 85

---

**78** A jar contains 13 black, 10 white marbles. One is picked at random. What is the probability that it is not black?

- [ ] A) 10/23
- [ ] B) 10/13
- [ ] C) 13/10
- [ ] D) 5/12
- [ ] E) 13/23

---

**79** The probabilities of red, blue and green are 0.2, 0.3 and 0.1. Only one other outcome (yellow) is possible. What is its probability?

- [ ] A) 0.3
- [ ] B) 0.9
- [ ] C) 0.6
- [ ] D) 0.5
- [ ] E) 0.4


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**80** A bag contains 5 blue, 2 green sweets. One is picked at random. What is the probability that it is blue?

- [ ] A) 2/7
- [ ] B) 1/2
- [ ] C) 5/8
- [ ] D) 5/7
- [ ] E) 5/2

---

**81** The probabilities of rain, snow and sunshine are 0.1, 0.4 and 0.2. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.8
- [ ] B) 0.3
- [ ] C) 0.7
- [ ] D) 0.4
- [ ] E) 0.2

---

**82** The probability of a player scoring a penalty is 1/2. A player takes 26 penalties. How many penalties would you expect to be scored?

- [ ] A) 52
- [ ] B) 26
- [ ] C) 13
- [ ] D) 12
- [ ] E) 14

---

**83** A box contains 1 black, 4 green cubes. One is picked at random. What is the probability that it is green?

- [ ] A) 4/5
- [ ] B) 1/5
- [ ] C) 2/3
- [ ] D) 4
- [ ] E) 1/2


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**84** The probability of a spinner landing on red is 9/10. The spinner is spun 50 times. How many times would you expect it to land on red?

- [ ] A) 450
- [ ] B) 5
- [ ] C) 44
- [ ] D) 46
- [ ] E) 45

---

**85** The probability of a spinner landing on red is 7/10. The spinner is spun 50 times. How many times would you expect it to land on red?

- [ ] A) 36
- [ ] B) 35
- [ ] C) 15
- [ ] D) 350
- [ ] E) 5

---

**86** A jar contains 5 blue, 6 orange marbles. One is picked at random. What is the probability that it is blue?

- [ ] A) 5/6
- [ ] B) 5/12
- [ ] C) 6/11
- [ ] D) 5/11
- [ ] E) 1/2

---

**87** The probability of a spinner landing on red is 1/2. The spinner is spun 8 times. How many times would you expect it to land on red?

- [ ] A) 4
- [ ] B) 3
- [ ] C) 8
- [ ] D) 5
- [ ] E) 16


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**88** The probability of a spinner landing on red is 7/10. The spinner is spun 200 times. How many times would you expect it to land on red?

- [ ] A) 60
- [ ] B) 141
- [ ] C) 20
- [ ] D) 140
- [ ] E) 139

---

**89** A jar contains 2 green, 8 purple, 1 black marbles. One is picked at random. What is the probability that it is purple?

- [ ] A) 8/3
- [ ] B) 8/11
- [ ] C) 2/3
- [ ] D) 3/11
- [ ] E) 1/3

---

**90** The probability of a spinner landing on red is 5/6. The spinner is spun 72 times. How many times would you expect it to land on red?

- [ ] A) 59
- [ ] B) 360
- [ ] C) 12
- [ ] D) 61
- [ ] E) 60

---

**91** A bag contains 6 black, 9 purple sweets. One is picked at random. What is the probability that it is purple?

- [ ] A) 1/2
- [ ] B) 1/15
- [ ] C) 3/5
- [ ] D) 3/2
- [ ] E) 2/5


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**92** Which point on a probability scale from 0 to 1 represents an impossible event?

- [ ] A) 0
- [ ] B) 0.2
- [ ] C) 0.5
- [ ] D) 0.8
- [ ] E) 1

---

**93** The probability of a spinner landing on red is 5/6. The spinner is spun 84 times. How many times would you expect it to land on red?

- [ ] A) 420
- [ ] B) 69
- [ ] C) 71
- [ ] D) 70
- [ ] E) 14

---

**94** A bag contains 7 orange, 8 yellow sweets. One is picked at random. What is the probability that it is orange?

- [ ] A) 7/15
- [ ] B) 7/8
- [ ] C) 8/15
- [ ] D) 1/2
- [ ] E) 7/16

---

**95** A box contains 10 blue, 4 orange cubes. One is picked at random. What is the probability that it is orange?

- [ ] A) 1/2
- [ ] B) 2/5
- [ ] C) 2/7
- [ ] D) 5/7
- [ ] E) 1/14


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**96** The probability of a player scoring a penalty is 1/4. A player takes 32 penalties. How many penalties would you expect to be scored?

- [ ] A) 128
- [ ] B) 9
- [ ] C) 24
- [ ] D) 7
- [ ] E) 8

---

**97** A bag contains 3 green, 8 blue sweets. One is picked at random. What is the probability that it is green?

- [ ] A) 1/11
- [ ] B) 8/11
- [ ] C) 3/8
- [ ] D) 3/11
- [ ] E) 1/4

---

**98** A jar contains 7 blue, 6 white, 13 yellow marbles. One is picked at random. What is the probability that it is white?

- [ ] A) 2/9
- [ ] B) 3/10
- [ ] C) 3/13
- [ ] D) 1/26
- [ ] E) 10/13

---

**99** The probability of a player scoring a penalty is 1/2. A player takes 32 penalties. How many penalties would you expect to be scored?

- [ ] A) 32
- [ ] B) 64
- [ ] C) 17
- [ ] D) 15
- [ ] E) 16


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**100** A jar contains 6 blue, 2 purple marbles. One is picked at random. What is the probability that it is purple?

- [ ] A) 1/4
- [ ] B) 3/4
- [ ] C) 1/3
- [ ] D) 2/9
- [ ] E) 1/8

---

**101** A bag contains 1 purple, 8 white counters. One is picked at random. What is the probability that it is purple?

- [ ] A) 1/2
- [ ] B) 8/9
- [ ] C) 1/8
- [ ] D) 1/9
- [ ] E) 1/10

---

**102** The probability of a spinner landing on red is 7/8. The spinner is spun 16 times. How many times would you expect it to land on red?

- [ ] A) 2
- [ ] B) 14
- [ ] C) 13
- [ ] D) 15
- [ ] E) 112

---

**103** A box contains 7 purple, 1 green cubes. One is picked at random. What is the probability that it is not purple?

- [ ] A) 1/8
- [ ] B) 1/7
- [ ] C) 7
- [ ] D) 1/9
- [ ] E) 7/8


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**104** The probabilities of rain, snow and sunshine are 0.2, 0.3 and 0.3. Only one other outcome (fog) is possible. What is its probability?

- ☐ A) 0.1
- ☐ B) 0.3
- ☐ C) 0.7
- ☐ D) 0.8
- ☐ E) 0.2

---

**105** A bag contains 6 black, 8 purple, 2 green sweets. One is picked at random. What is the probability that it is not green?

- ☐ A) 7/8
- ☐ B) 7
- ☐ C) 1/7
- ☐ D) 1/16
- ☐ E) 1/8

---

**106** The probabilities of red, blue and green are 0.1, 0.1 and 0.1. Only one other outcome (yellow) is possible. What is its probability?

- ☐ A) 0.6
- ☐ B) 0.3
- ☐ C) 0.7
- ☐ D) 0.9
- ☐ E) 0.8

---

**107** A jar contains 3 blue, 7 black marbles. One is picked at random. What is the probability that it is black?

- ☐ A) 1/2
- ☐ B) 7/10
- ☐ C) 7/11
- ☐ D) 7/3
- ☐ E) 3/10


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**108** A bag contains 1 purple, 5 white counters. One is picked at random. What is the probability that it is white?

- [ ] A) 1/6
- [ ] B) 5/7
- [ ] C) 1/2
- [ ] D) 5/6
- [ ] E) 5

---

**109** The probability of a seed growing is 2/5. 80 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 16
- [ ] B) 33
- [ ] C) 160
- [ ] D) 32
- [ ] E) 48

---

**110** A bag contains 3 white, 2 orange sweets. One is picked at random. What is the probability that it is white?

- [ ] A) 2/5
- [ ] B) 1/2
- [ ] C) 1/5
- [ ] D) 3/2
- [ ] E) 3/5

---

**111** A bag contains 11 yellow, 10 purple sweets. One is picked at random. What is the probability that it is purple?

- [ ] A) 11/21
- [ ] B) 10/11
- [ ] C) 10/21
- [ ] D) 1/2
- [ ] E) 1/21


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**112** The probability of a player scoring a penalty is 5/6. A player takes 42 penalties. How many penalties would you expect to be scored?

- [ ] A) 34
- [ ] B) 35
- [ ] C) 210
- [ ] D) 36
- [ ] E) 7

---

**113** A bag contains 7 yellow, 5 purple counters. One is picked at random. What is the probability that it is purple?

- [ ] A) 5/7
- [ ] B) 5/12
- [ ] C) 1/2
- [ ] D) 1/12
- [ ] E) 7/12

---

**114** A bag contains 11 yellow, 12 green, 13 blue counters. One is picked at random. What is the probability that it is not yellow?

- [ ] A) 1/36
- [ ] B) 11/36
- [ ] C) 25/37
- [ ] D) 25/36
- [ ] E) 25/11

---

**115** The probabilities of rain, snow and sunshine are 0.4, 0.1 and 0.3. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.2
- [ ] B) 0.8
- [ ] C) 0.3
- [ ] D) 0.7
- [ ] E) 0.6


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**116** A jar contains 7 purple, 3 orange marbles. One is picked at random. What is the probability that it is orange?

- [ ] A) 7/10
- [ ] B) 3/7
- [ ] C) 3/10
- [ ] D) 3/11
- [ ] E) 1/10

---

**117** The probabilities of rain, snow and sunshine are 0.1, 0.2 and 0.1. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.6
- [ ] B) 0.5
- [ ] C) 0.9
- [ ] D) 0.4
- [ ] E) 0.7

---

**118** A box contains 5 blue, 7 white cubes. One is picked at random. What is the probability that it is white?

- [ ] A) 5/12
- [ ] B) 1/2
- [ ] C) 7/5
- [ ] D) 7/12
- [ ] E) 1/12

---

**119** The probabilities of rain, snow and sunshine are 0.4, 0.2 and 0.2. Only one other outcome (fog) is possible. What is its probability?

- [ ] A) 0.3
- [ ] B) 0.6
- [ ] C) 0.2
- [ ] D) 0.1
- [ ] E) 0.8


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**120** The probabilities of win, draw and lose are 0.3, 0.2 and 0.2. Only one other outcome (abandoned) is possible. What is its probability?

- [ ] A) 0.2
- [ ] B) 0.4
- [ ] C) 0.7
- [ ] D) 0.8
- [ ] E) 0.3

---

**121** A jar contains 4 green, 9 purple marbles. One is picked at random. What is the probability that it is not purple?

- [ ] A) 9/13
- [ ] B) 4/9
- [ ] C) 2/7
- [ ] D) 4/13
- [ ] E) 9/4

---

**122** The probability of a seed growing is 1/2. 28 seeds are planted. How many seeds would you expect to grow?

- [ ] A) 14
- [ ] B) 15
- [ ] C) 56
- [ ] D) 28
- [ ] E) 13

---

**123** The probability of a spinner landing on red is 7/10. The spinner is spun 100 times. How many times would you expect it to land on red?

- [ ] A) 30
- [ ] B) 700
- [ ] C) 70
- [ ] D) 69
- [ ] E) 10


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**124** A jar contains 8 black, 9 orange marbles. One is picked at random. What is the probability that it is orange?

- ☐ A) 1/17
- ☐ B) 1/2
- ☐ C) 9/8
- ☐ D) 8/17
- ☐ E) 9/17

---

**125** Two fair coins are tossed once. Calculate the probability of getting exactly one head.

**(2)**

---

**126** Three fair coins are tossed once. Calculate the probability of getting at least one head.

**(3)**


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# Mark scheme · 2.105 Probability Scale and Simple Outcomes: 2-hour Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

### Question 1

correct option B (10/17) cao **B1**

**Answer: B) 10/17**

### Question 2

correct option E (16) cao **B1**

**Answer: E) 16**

### Question 3

correct option A (3/7) cao **B1**

**Answer: A) 3/7**

### Question 4

correct option B (0.2) cao **B1**

**Answer: B) 0.2**

### Question 5

correct option C (1/15) cao **B1**

**Answer: C) 1/15**

### Question 6

correct option D (12) cao **B1**

**Answer: D) 12**

### Question 7

correct option A (36) cao **B1**

**Answer: A) 36**

### Question 8

correct option E (5/6) cao **B1**

**Answer: E) 5/6**

### Question 9

correct option C (20) cao **B1**

**Answer: C) 20**

### Question 10

correct option D (0.4) cao **B1**

**Answer: D) 0.4**

### Question 11

correct option C (13/16) cao **B1**

**Answer: C) 13/16**

### Question 12

correct option A (5/9) cao **B1**

**Answer: A) 5/9**

### Question 13

correct option A (18) cao **B1**

**Answer: A) 18**

### Question 14

correct option B (6/11) cao **B1**

**Answer: B) 6/11**

### Question 15

correct option E (0.4) cao **B1**

**Answer: E) 0.4**

### Question 16

correct option A (2/3) cao **B1**

**Answer: A) 2/3**

### Question 17

correct option E (4/9) cao **B1**

**Answer: E) 4/9**

### Question 18

correct option D (14) cao **B1**

**Answer: D) 14**

### Question 19

correct option B (1/7) cao **B1**

**Answer: B) 1/7**

### Question 20

correct option D (1/5) cao **B1**

**Answer: D) 1/5**

### Question 21

correct option D (50) cao **B1**

**Answer: D) 50**

### Question 22

correct option B (32) cao **B1**

**Answer: B) 32**

### Question 23

correct option E (8) cao **B1**

**Answer: E) 8**

### Question 24

correct option A (5/24) cao **B1**

**Answer: A) 5/24**

### Question 25

correct option B (15) cao **B1**

**Answer: B) 15**

### Question 26

correct option D (11/19) cao **B1**

**Answer: D) 11/19**

### Question 27

correct option C (0.6) cao **B1**

**Answer: C) 0.6**


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## Question 28

correct option E (4/7) cao **B1**

**Answer: E) 4/7**

## Question 29

correct option E (0.3) cao **B1**

**Answer: E) 0.3**

## Question 30

correct option B (2/7) cao **B1**

**Answer: B) 2/7**

## Question 31

correct option C (0.2) cao **B1**

**Answer: C) 0.2**

## Question 32

correct option D (16/23) cao **B1**

**Answer: D) 16/23**

## Question 33

correct option E (5/9) cao **B1**

**Answer: E) 5/9**

## Question 34

correct option A (30) cao **B1**

**Answer: A) 30**

## Question 35

correct option B (6/7) cao **B1**

**Answer: B) 6/7**

## Question 36

correct option D (2/19) cao **B1**

**Answer: D) 2/19**

## Question 37

correct option B (16) cao **B1**

**Answer: B) 16**

## Question 38

correct option D (9/17) cao **B1**

**Answer: D) 9/17**

## Question 39

correct option A (6) cao **B1**

**Answer: A) 6**

## Question 40

correct option A (4) cao **B1**

**Answer: A) 4**

## Question 41

correct option E (1/5) cao **B1**

**Answer: E) 1/5**

## Question 42

correct option C (0.1) cao **B1**

**Answer: C) 0.1**

## Question 43

correct option A (18) cao **B1**

**Answer: A) 18**

## Question 44

correct option E (7/12) cao **B1**

**Answer: E) 7/12**

## Question 45

correct option B (36) cao **B1**

**Answer: B) 36**

## Question 46

correct option E (0.2) cao **B1**

**Answer: E) 0.2**

## Question 47

correct option B (7/12) cao **B1**

**Answer: B) 7/12**

## Question 48

correct option D (8/11) cao **B1**

**Answer: D) 8/11**

## Question 49

correct option A (7/8) cao **B1**

**Answer: A) 7/8**

## Question 50

correct option D (0.1) cao **B1**

**Answer: D) 0.1**

## Question 51

correct option D (11/14) cao **B1**

**Answer: D) 11/14**

## Question 52

correct option E (8) cao **B1**

**Answer: E) 8**

## Question 53

correct option C (9/23) cao **B1**

**Answer: C) 9/23**

## Question 54

correct option A (14) cao **B1**

**Answer: A) 14**

## Question 55

correct option B (7/11) cao **B1**

**Answer: B) 7/11**

## Question 56

correct option B (9/11) cao **B1**

**Answer: B) 9/11**

## Question 57

correct option E (17) cao **B1**

**Answer: E) 17**


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## Question 58

correct option D (36) cao **B1**

**Answer: D) 36**

## Question 59

correct option A (0.4) cao **B1**

**Answer: A) 0.4**

## Question 60

correct option E (2/5) cao **B1**

**Answer: E) 2/5**

## Question 61

correct option C (0.3) cao **B1**

**Answer: C) 0.3**

## Question 62

correct option A (9) cao **B1**

**Answer: A) 9**

## Question 63

correct option D (8/21) cao **B1**

**Answer: D) 8/21**

## Question 64

correct option C (0.7) cao **B1**

**Answer: C) 0.7**

## Question 65

correct option B (2/11) cao **B1**

**Answer: B) 2/11**

## Question 66

correct option B (-0.2) cao **B1**

**Answer: B) -0.2**

## Question 67

correct option A (0.2) cao **B1**

**Answer: A) 0.2**

## Question 68

correct option B (4/19) cao **B1**

**Answer: B) 4/19**

## Question 69

correct option E (5/11) cao **B1**

**Answer: E) 5/11**

## Question 70

correct option B (0.3) cao **B1**

**Answer: B) 0.3**

## Question 71

correct option D (16/25) cao **B1**

**Answer: D) 16/25**

## Question 72

correct option C (3/5) cao **B1**

**Answer: C) 3/5**

## Question 73

correct option A (81) cao **B1**

**Answer: A) 81**

## Question 74

correct option B (7/13) cao **B1**

**Answer: B) 7/13**

## Question 75

correct option D (5) cao **B1**

**Answer: D) 5**

## Question 76

correct option D (8/15) cao **B1**

**Answer: D) 8/15**

## Question 77

correct option C (17) cao **B1**

**Answer: C) 17**

## Question 78

correct option A (10/23) cao **B1**

**Answer: A) 10/23**

## Question 79

correct option E (0.4) cao **B1**

**Answer: E) 0.4**

## Question 80

correct option D (5/7) cao **B1**

**Answer: D) 5/7**

## Question 81

correct option B (0.3) cao **B1**

**Answer: B) 0.3**

## Question 82

correct option C (13) cao **B1**

**Answer: C) 13**

## Question 83

correct option A (4/5) cao **B1**

**Answer: A) 4/5**

## Question 84

correct option E (45) cao **B1**

**Answer: E) 45**

## Question 85

correct option B (35) cao **B1**

**Answer: B) 35**

## Question 86

correct option D (5/11) cao **B1**

**Answer: D) 5/11**

## Question 87

correct option A (4) cao **B1**

**Answer: A) 4**


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## Question 88

correct option D (140) cao **B1**

**Answer: D) 140**

## Question 89

correct option B (8/11) cao **B1**

**Answer: B) 8/11**

## Question 90

correct option E (60) cao **B1**

**Answer: E) 60**

## Question 91

correct option C (3/5) cao **B1**

**Answer: C) 3/5**

## Question 92

correct option A (0) cao **B1**

**Answer: A) 0**

## Question 93

correct option D (70) cao **B1**

**Answer: D) 70**

## Question 94

correct option A (7/15) cao **B1**

**Answer: A) 7/15**

## Question 95

correct option C (2/7) cao **B1**

**Answer: C) 2/7**

## Question 96

correct option E (8) cao **B1**

**Answer: E) 8**

## Question 97

correct option D (3/11) cao **B1**

**Answer: D) 3/11**

## Question 98

correct option C (3/13) cao **B1**

**Answer: C) 3/13**

## Question 99

correct option E (16) cao **B1**

**Answer: E) 16**

## Question 100

correct option A (1/4) cao **B1**

**Answer: A) 1/4**

## Question 101

correct option D (1/9) cao **B1**

**Answer: D) 1/9**

## Question 102

correct option B (14) cao **B1**

**Answer: B) 14**

## Question 103

correct option A (1/8) cao **B1**

**Answer: A) 1/8**

## Question 104

correct option E (0.2) cao **B1**

**Answer: E) 0.2**

## Question 105

correct option A (7/8) cao **B1**

**Answer: A) 7/8**

## Question 106

correct option C (0.7) cao **B1**

**Answer: C) 0.7**

## Question 107

correct option B (7/10) cao **B1**

**Answer: B) 7/10**

## Question 108

correct option D (5/6) cao **B1**

**Answer: D) 5/6**

## Question 109

correct option D (32) cao **B1**

**Answer: D) 32**

## Question 110

correct option E (3/5) cao **B1**

**Answer: E) 3/5**

## Question 111

correct option C (10/21) cao **B1**

**Answer: C) 10/21**

## Question 112

correct option B (35) cao **B1**

**Answer: B) 35**

## Question 113

correct option B (5/12) cao **B1**

**Answer: B) 5/12**

## Question 114

correct option D (25/36) cao **B1**

**Answer: D) 25/36**

## Question 115

correct option A (0.2) cao **B1**

**Answer: A) 0.2**

## Question 116

correct option C (3/10) cao **B1**

**Answer: C) 3/10**

## Question 117

correct option A (0.6) cao **B1**

**Answer: A) 0.6**


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## Question 118

correct option D (7/12) cao **B1**

**Answer: D) 7/12**

## Question 119

correct option C (0.2) cao **B1**

**Answer: C) 0.2**

## Question 120

correct option E (0.3) cao **B1**

**Answer: E) 0.3**

## Question 121

correct option D (4/13) cao **B1**

**Answer: D) 4/13**

## Question 122

correct option A (14) cao **B1**

**Answer: A) 14**

## Question 123

correct option C (70) cao **B1**

**Answer: C) 70**

## Question 124

correct option E (9/17) cao **B1**

**Answer: E) 9/17**

## Question 125

method: exactly one head occurs in HT and TH, 2 favourable outcomes seen **M1**

2/4 = 1/2 cao **A1**

**Answer: 1/2**

## Question 126

method: probability of no heads (TTT) = 1/8 identified **M1**

method: use complement 1 - 1/8 seen **M1**

7/8 cao **A1**

**Answer: 7/8**


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